

Claims

1. A process for coating laundry detergent or cleaning product tablets that comprise builder(s) and also, if desired, further laundry detergent and cleaning product ingredients, said process comprising the steps of transporting the tablets at a speed in a conveying plane on a conveyor belt provided with a multiplicity of apertures and forcing coating material through the conveyor belt apertures from below with a force such that the coating material forced over the conveying plane forms a surge through which the tablets are transported.
2. The process of claim 1, wherein the tablets additionally pass through a mist of coating material.
3. The process of claim 1, wherein the surge or coating material lifts the tablets from the conveyor belt.
4. The process of claim 1, wherein the surge is generated by a roller which rotates in the coating material, the movement of the surge being generated in the direction of the conveying direction of the tablets.
5. The process of claim 4, wherein return flow of the coating material is adjusted by way of a slide valve which is adjustable tangentially in the direction of the roller.
6. The process of claim 1, wherein the surge has a speed on emergence from the apertures that is approximately the same as the speed of the conveyor belt.

7. The process of claim 1, wherein the coating material is applied in the form of a solution or dispersion or in the form of a melt.
- 5
8. The process of claim 1, wherein the coating material comprises water-soluble and/or meltable polymers or polymer mixtures.
- 10 9. The process of claim 8, wherein the polymers or polymer mixtures comprise one or more of:
- a) water-soluble nonionic polymers from the group of
- 15 a1) polyvinylpyrrolidones  
a2) vinylpyrrolidone-vinyl ester copolymers  
a3) cellulose ethers  
a4) homopolymers of vinyl alcohol, copolymers of vinyl alcohol with copolymerizable monomers,
- 20 or hydrolysis products of vinyl ester homopolymers or vinyl ester copolymers with copolymerizable monomers
- b) water-soluble amphoteric polymers from the group of
- 25
- b1) alkylacrylamide-acrylic acid copolymers  
b2) alkylacrylamide-methacrylic acid copolymers  
b3) alkylacrylamide-methylmethacrylic acid copolymers
- 30 b4) alkylacrylamide-acrylic acid-alkylaminoalkyl(meth)acrylic acid copolymers  
b5) alkylacrylamide-methacrylic acid-alkylaminoalkyl(meth)acrylic acid copolymers
- 35 b6) alkylacrylamide-methylmethacrylic acid-alkylaminoalkyl(meth)acrylic acid copolymers  
b7) alkylacrylamide-alkyl methacrylate-alkylaminoethyl methacrylate-alkyl methacrylate copolymers

- b8) copolymers of
  - b8i) unsaturated carboxylic acids
  - b8ii) cationically derivatized unsaturated carboxylic acids
  - 5 b8iii) if desired, further ionic or nonionic monomers
- c) water-soluble zwitterionic polymers from the group of
  - 10 c1) acrylamidoalkyltrialkylammonium chloride-acrylic acid copolymers and their alkali metal and ammonium salts
  - 15 c2) acrylamidoalkyltrialkylammonium chloride-methacrylic acid copolymers and their alkali metal and ammonium salts
  - c3) methacroylethyl betaine-methacrylate copolymers
- 20 d) water-soluble anionic polymers from the group of
  - d1) vinyl acetate-crotonic acid copolymers
  - d2) vinylpyrrolidone-vinyl acrylate copolymers
  - 25 d3) acrylic acid-ethyl acrylate-N-tert-butylacrylamide terpolymers
  - d4) graft polymers of vinyl esters, esters of acrylic acid or methacrylic acid alone or in a mixture, copolymerized with crotonic acid, acrylic acid or methacrylic acid with polyalkylene oxides and/or polyalkylene glycols
  - 30 d5) grafted and crosslinked copolymers from the copolymerization of
    - d5i) at least one monomer of the nonionic type,
    - 35 d5ii) at least one monomer of the ionic type,
    - d5iii) polyethylene glycol, and
    - d5iv) a crosslinker

- d6) copolymers obtained by copolymerizing at least one monomer from each of the three following groups:
- 5 d6i) esters of unsaturated alcohols and short-chain saturated carboxylic acids and/or esters of short-chain saturated alcohols and unsaturated carboxylic acids,
- d6ii) unsaturated carboxylic acids,
- 10 d6iii) esters of long-chain carboxylic acids and unsaturated alcohols and/or esters of the carboxylic acids of group d6ii) with saturated or unsaturated, straight-chain or branched C<sub>8-18</sub> alcohol
- d7) graft copolymers obtainable by grafting d7i) polyalkylene oxides with d7ii) vinyl acetate
- 15 d8) terpolymers of crotonic acid, vinyl acetate and an allyl or methallyl ester
- d9) tetra- and pentapolymers of
- 20 d8i) crotonic acid or allyloxyacetic acid
- d8ii) vinyl acetate or vinyl propionate
- d8iii) branched allyl or methallyl esters
- d8iv) vinyl ethers, vinyl esters or straight-chain allyl or methallyl esters
- 25 d10) crotonic acid copolymers with one or more monomers from the group consisting of ethylene, vinylbenzene, vinyl methyl ether, acrylamide and water-soluble salts thereof
- 30 d11) terpolymers of vinyl acetate, crotonic acid and vinyl esters of a saturated aliphatic  $\alpha$ -branched monocarboxylic acid
- e) water-soluble cationic polymers from the group of
- 35 e1) quaternized cellulose derivatives
- e2) polysiloxanes with quaternary groups
- e3) cationic guar derivatives

- e4) polymeric dimethyldiallylammonium salts and their copolymers with esters and amides of acrylic acid and methacrylic acid
- 5 e5) copolymers of vinylpyrrolidone with quaternized derivatives of dialkylaminoacrylate and -methacrylate
- e6) vinylpyrrolidone-methoimidazolinium chloride copolymers
- e7) quaternized polyvinyl alcohol
- 10 e8) polymers indicated under the INCI designations Polyquaternium 2, Polyquaternium 17, Polyquaternium 18, and Polyquaternium 27
- f) polyurethanes
- 15 g) LCST polymers, preferably selected from alkylated and/or hydroxyalkylated polysaccharides, cellulose ethers, acrylamides, such as polyisopropylacrylamide, copolymers of acrylamides, polyvinylcaprolactam, copolymers of polyvinylcaprolactam, particularly those with polyvinylpyrrolidone, 20 polyvinyl methyl ether, copolymers of polyvinyl methyl ether, and blends of these substances.
- 25 10. The process of claim 1, wherein the coating material has a temperature of from 30 to 300°C.
- 11. The process of claim 1, wherein the coating material is applied in the form of an aqueous 30 solution or dispersion, and the tablets are subsequently subjected to a drying step.
- 12. The process of claim 1, wherein the weight ratio of uncoated tablet to coating is > 10:1.
- 35 13. The process of claim 1, wherein the thickness of the coating on the tablet is from 0.1 to 500 µm.

14. The process of claim 1, wherein the coating additionally comprises substances selected from the groups consisting of disintegration aids, dyes, optical brighteners, fragrances, enzymes, bleaches, bleach activators, silver protectants, complexing agents, surfactants, graying inhibitors, and mixtures thereof in total amounts of from 0.5 to 30% by weight based on the weight of the coating.
15. The process of claim 10, wherein the coating has a temperature of from 35 to 90°C.
16. The process of claim 15, wherein the coating has a temperature of from 40 to 85°C.
17. The process of claim 16, wherein the coating has a temperature of from 50 to 80°C.
18. The process of claim 12, wherein the weight ratio of uncoated tablet to coating is > 25:1.
19. The process of claim 18, wherein the weight ratio of uncoated tablet to coating is > 50:1.
20. The process of claim 13, wherein the thickness of the coating on the tablet is from 0.5 to 250 µm.
21. The process of claim 20, wherein the thickness of the coating on the tablet is from 5 to 100 µm.
22. The process of claim 14, wherein the coating additionally comprises substances selected from the groups consisting of disintegration aids, dyes, optical brighteners, fragrances, enzymes, bleaches, bleach activators, silver protectants, complexing agents, surfactants, graying inhibitors, and mixtures thereof in total amounts

of from from 1 to 20% by weight based on the weight of the coating.

23. The process of claim 22, wherein the coating  
5 additionally comprises one or more substances  
selected from the groups consisting of  
disintegration aids, dyes, optical brighteners,  
fragrances, enzymes, bleaches, bleach activators,  
silver protectants, complexing agents,  
10 surfactants, graying inhibitors, and mixtures  
thereof in total amounts of from 2.5 to 10% by  
weight, based on the weight of the coating.